

<b>Section 1:</b>		<b>Product Information</b>	
Name:	<b>MS-90 Glass Primer</b>		
Description:	<b>Formulated polyurethane</b>		
Use:	Primer for auto glass		
MSDS number:	YHAI-24		
Appearance and odor:	Black liquid, Sweet odor		
Emergency telephone:	1-800-424-9300 CHEMTREC		
Product information:	859-879-2853		
Effective date:	8/1/2008		
Supersedes date:	5/15/2008		
<b>Section 2:</b>		<b>Hazardous Ingredients</b>	
A hazard evaluation of this product has been performed. The components listed below are identified as hazardous chemicals under the criteria of the OSHA hazard communication standard (29 CFR 1910.1200).			
<b>Common name / Chemical name</b>	<b>CAS number</b>	<b>Approximate %</b>	
Ethyl acetate / Acetic acid ethyl ester	141-78-6	60- 90	
Carbon black	1333-86-4	5-10	
Butyl acetate, N- / 1-Butyl acetate	123-86-4	1-5	
2,4/2,6 Diisocyanatoluene	26471-62-5	<1	
Hexamethylene-1,6-Diisocyanate	822-06-0	<1	
Aromatic, Aliphatic Polyisocyanate	63368-95-6	6-8	
1,3 bis(isocyanatomethyl)cyclohexane	38661-72-2	3	
<b>Section 3:</b>		<b>Emergency and First Aid Procedure</b>	
<b>Eye contact:</b>			
Flush eyes with water for at least 15 minutes. Lift eyelids frequently. Get prompt medical attention.			
<b>Skin contact:</b>			
Remove contaminated clothing and shoes. Wash affected area with soap and water. If irritation develops, consult a physician. Wash contaminated clothing separately before reuse.			
<b>Inhalation:</b>			
Remove to fresh air. If symptoms develop, seek immediate medical attention. If not breathing, give artificial respiration, preferably mouth to mouth.			
<b>Ingestion:</b>			
Seek medical attention. Unless advised otherwise, induce vomiting by giving either syrup of ipecac followed by 2 glasses of water or by sticking finger down throat.			
<i>Note to physician:</i>			
Treatment should be directed at preventing absorption, administering to the symptoms as they occur, and providing supportive therapy.			
<b>Section 4:</b>		<b>Health Effects Summary</b>	
<b>Primary route(s) of exposure:</b>	<b>Eye - yes</b>	<b>Skin - yes</b>	<b>Inhalation - yes</b>
<b>Eye contact:</b>			
Can cause mild to moderate irritation.			
Corneal opacification and vascularization can occur.			
<b>Skin contact:</b>			
Can cause mild to moderate irritation.			
Prolonged or repeated contact can defat the skin, cause irritation, and lead to the development of dermatitis.			



**Isocyanate Blend ( made of 26471-62-5, 822-06-0, & 63368-95-6)****Special Properties / effects:**

Over-exposure, especially when spraying coatings containing isocyanate without the necessary precautions, entails the risk of concentration-dependent irritating effects on the eyes, nose, throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the German-control limit (MAK-value). In case of longer contact with skin, tanning and irritating effects are possible

**Acute toxicity studies:**

Oral-rat	LD50:	> 5,000 mg/kg
Inhalation-rat	LC50:	> 3003 mg as aerosol / m <sup>3</sup> , 4 hr exposure

**Skin and mucous membrane compatibility, rabbit:**

Skin 4 hours exposure - slight reddening for a short time

Eyes - moderate reddening

**Skin sensitization according to Magnusson / Kligmann (maximizing test):**

In the guinea pig the product has a sensitizing effect

(OECD Guideline for testing of chemicals, No. 406)

**1,3 bis(isocyanatomethyl)cyclohexane**

Oral-rat	LD50:	1900 mg/kg
Oral-mouse	LD50:	570 mg/kg

*Weakly toxic and this substance has a corrosive action on the esophagus and stomach lining*

**Inhalation:** The vapour irritates the respiratory system including nose, throat, windpipe, lungs, and may cause asthma.

Allergy like asthmatic symptoms may occur in susceptible subjects.

By animal experiment, LC50(4H) of this substance when administered to rats as an aerosol, was established at 189.9 mg / m<sup>3</sup> of air

**Skin Contact:** Prolonged and repeated skin contact causes dermatitis. By animal experiment,

1) Skin irritation test rabbit: Primary irritation Index = 4.6 and is considered "moderate irritant" to rabbit skin

2) Acute percutaneous toxicity (rat): LD50 = greater than 5.0g/kg. No toxic

**Eye contact:** In the form of liquid irritates the eyes severely and may cause corneal damage. Vapour also irritates the eyes, causing watering and discomfort

Carcinogenicity:	NTP?	None
	OSHA Regulated?	None
	IARC Monographs?	None

Mutagenicity by Ames test shows negative with and without S-9 mix. By screening test, in ten albino guinea pigs, produced evidence of delayed contact hypersensitivity

**Butyl acetate, N-****Toxic effects:**

Vapors and liquid are irritating to the eyes. Skin contact, especially if prolonged or repeated, can cause dermatitis. Can be absorbed causing systemic effects. Ingestion can cause abdominal pain, sore throat, nausea vomiting, headache, and drowsiness. Vapors are irritating to the upper respiratory tract and can cause coughing, chest pain, and shortness of breath. Kidney and blood changes have been reported. Chronic exposure is reported to cause conjunctival irritation, feeling of chest constriction and coughing.

**Acute toxicity studies:**

Oral-rat	LD50:	13,100 mg/kg
Oral-mouse	LD50:	2060 mg/kg
Oral-guinea pig	LD50:	4700 mg/kg
Inhalation-rat	LC50:	2000 ppm/4-hours
Inhalation-mouse	LC50:	6000 mg/m <sup>3</sup> /2-hours

Continued on next page

**Carcinogenicity - listed by:**

ACGIH: no

IARC monographs: no

NTP annual report: no

OSHA: no

**Section 6:****Occupational Control Procedures****Eye protection:**

Wear chemical splash goggles. An eye wash facility should be readily available.

**Skin protection:**

Wear protective clothing and appropriate impervious gloves. Because a variety of protective gloves exist, always consult glove manufacturer to determine the proper type for specific operation.

**Respiratory protection:**

Avoid breathing vapor and/or mist.

When established airborne exposure limits are surpassed (see airborne exposure limits in this section), wear NIOSH/MSHA approved equipment. Determine the appropriate type equipment for specific application by consulting the respirator manufacturer. Observe the respirator use limitations specified by NIOSH/MSHA or the manufacturer.

High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator. In addition, respiratory protection programs must be in compliance with 29 CFR 1910.134.

**Ventilation:**

Maintain airborne concentration below the established exposure limits (See airborne exposure limits in this section). General (dilution) ventilation may be acceptable. However, local exhaust ventilation is recommended when vapors, mists, or dusts can be released.

**Personal hygiene:**

Wash thoroughly after handling, especially before eating, drinking, smoking, or using restroom facilities.

Wash contaminated goggles, faceshield, and gloves. Professionally launder contaminated clothing. Discard contaminated shoes.

**Airborne exposure limits****Ethyl acetate**

ACGIH TLV-TWA: 400 ppm 1440 mg/m<sup>3</sup>

OSHA PEL: 400 ppm 1400 mg/m<sup>3</sup>

**Carbon black**

ACGIH TLV-TWA: 3.5 mg/m<sup>3</sup>

OSHA PEL: 3.5 mg/m<sup>3</sup>

**Butyl acetate, N-**

ACGIH TLV-TWA: 150 ppm 713 mg/m<sup>3</sup>

STEL: 200 ppm 950 mg/m<sup>3</sup>

OSHA PEL: 150 ppm 710 mg/m<sup>3</sup>

STEL: 200 ppm 950 mg/m<sup>3</sup>

Section 7:	Fire Protection Information	
<b>Flash point:</b>	27oF, -3oC	Test method: setaflash closed cup.
<b>Explosive limits:</b>	LEL (%) - 2.2	UEL (%) - 11.0
<b>Auto-ignition temperature:</b>	not established	
<b>Extinguishing media:</b>		
<i>Small fires</i> :	use foam, carbon dioxide, dry chemical, or water spray.	
<i>Large fires</i> :	use foam, water spray, or fog.	
<b>Special fire fighting procedures:</b>		
	Fire fighters and others who may be exposed to the products of combustion should be equipped with NIOSH approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing.	
<b>Unusual fire and explosion hazards:</b>		
	When exposed to flames or high temperatures encountered during fire conditions, sealed containers may rupture because of the build up of internal pressure. Cool containers with water.	
	Vapors may be heavier than air and may travel considerable distances from the material handling point. Vapors can be ignited by a spark, flame, cigarette, electric motor, static discharge, engine, pilot light, hot surface, or other ignition source.	
	May liberate irritating or toxic vapors during combustion or decomposition.	
Section 8:	Reactivity Data	
<b>Stable under normal conditions of storage and use:</b>	yes	
<b>Materials to avoid:</b>		
Oxidizing agents.		
Acids.		
<b>Hazardous polymerization:</b>		
	Hazardous polymerization will not occur.	
<b>Thermal decomposition products:</b>		
	If heated to high temperatures, this product may emit the following compounds:	
Flammable solvent vapors.		
Isocyanate containing compounds.		
Oxides of nitrogen.		
Smoke, soot, & toxic fumes (e.g. carbon dioxide & carbon monoxide).		
Section 9:	Spill and Leak Procedures	
<b>Response to spills:</b>		
	Stop discharge, if it can be performed safely, and contain material. Use an absorbent such as fuller's earth, clay, or other appropriate synthetic absorbent. Use a brass or "non-spark" shovel to pick up any absorbed material.	
	Place contaminated material in a suitable container for disposal. Appropriate safety measures and protective equipment should be used (see section 6). Do not flush to streams, rivers, or other bodies of water.	
<b>Precautions:</b>		
	Eliminate all sources of ignition.	
	If the airborne concentration exceeds established exposure limits (TLV or PEL), or if high airborne concentrations can occur, evacuate employees and ventilate the area.	
	A supplied air respirator or self-contained breathing apparatus (SCBA) should be used for entry into enclosed spaces, or in areas with inadequate ventilation.	

MS-90 MSDS

**Disposal methods:**

If discarded in its original unused form, this product exhibits the characteristics of a RCRA hazardous waste as defined under:

40 CFR 261.21 (i.e. ignitable - D001)

Therefore, it must be managed (stored/ treated/disposed/etc.) at a properly permitted facility, in compliance with all applicable federal, state, and local requirements. Be sure to contact the appropriate government environmental agencies if further guidance is required.

It is recommended that an alternative be selected according to the waste management hierarchy.

**Section 10: Special Precautions**

**Recommended storage practice and conditions:**

Store in cool, dry, well ventilated area. Do not store near heat or ignition sources, or in direct sunlight. Always keep containers tightly closed to avoid contamination.

*Special warning:* Hot organic chemical vapors or mists can suddenly and without warning combust when mixed with air. Ignition can occur at typical elevated temperature process conditions. Any proposed use in such processes should be evaluated thoroughly to assure safe operating conditions.

**Container use procedures:**

Containers should be supported and grounded before opening, dispensing, mixing, pouring, and emptying. Open with no-sparking tools. If the container is warm, open bung slowly to release internal pressure.

**Empty container precautions:**

This container is hazardous when empty. Do not use heat, sparks, open flames, torches, or cigarettes on or near empty container. Empty containers can retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption or where skin contact may occur.

*Supplemental section 10 information:*

**HMIS classification - health: 1; flammability: 3; reactivity: 0.**

**Section 11: Physical Data**

% Non-volatile (by weight):	21
pH:	not applicable
Vapor density (air=1):	3.04
Solubility in water:	insoluble
Evaporation rate (n-butyl acetate=1):	3.9
Vapor pressure (mmHg @25oC):	100
Specific gravity (water=1);	< 1
Approximate boiling point:	not established

*Note: The physical data presented above are typical values and should not be construed as a specification.*

**Section 12: Label and Transportation Information**

DOT shipping name:	Adhesive, containing a flammable liquid
DOT label:	flammable liquid
DOT identification No.:	UN 1133
<i>Supplemental section 12 information:</i>	
For Canadian shipments:	not established.
HM-181, IATA/ICAO and IMO - proper shipping name:	adhesive, containing a flammable liquid; Hazard class: 3 (IATA HM-181), 3.2 (IMO); subsidiary risk: none; UN No.: 1133;
Packaging group:	II; label(s): flammable liquid.

Section 13:	Regulatory Information
Toxic substance control act (TSCA)	
Chemical component(s) in this product are or (b) chemical substance inventory listing (40 CFR 710).	
SARA title information	
Section 313 - toxic chemicals	
<b>Toluene Diisocyanate</b>	
Section 302 - extremely hazardous substances	
<b>Toluene Diisocyanate</b>	
Section 311/312 - hazard categories	
Pursuant to section 311/312 of SARA title", the physical and health hazard categories for this product are identified below:	
<b>Fire hazard:</b>	yes
<b>Sudden release of pressure hazard:</b>	yes
<b>Reactivity hazard:</b>	no
<b>Immediate (acute) health hazard:</b>	yes
<b>Delayed (chronic) health hazard:</b>	yes
Hazardous materials information review regulation - Canada	
This material safety data sheet provides information that complies with the requirement set forth under the Canadian workplace hazardous materials information system (WHMIS).	
Claim for exemption registry No.:	not applicable
Filing date for claim:	not applicable

**Section 14: Users Responsibility**

A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions - in addition to those described herein - are required. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be.

Disclaimer of liability

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations of warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

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If you have questions with regard to health effects, or other information presented in this document, contact:

Neil Dalton

Director of Environment, Health and Safety

Yokohama Tire Corporation

1500 Indiana Avenue

Salem, VA 24153

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**MS-90 MSDS**

State of California addendum to the material safety data sheet

Product name: **MS-90 Glass Primer**  
Effective date: 8/1/2008

The California safe drinking water and toxic enforcement act of 1986, otherwise known as proposition 65, requires that persons potentially exposed to certain substances be made aware of the chronic effects of the substances specified by the state of California.

This product contains the following substances known to the state of California to cause cancer, birth defects, or other reproductive harm.

Ingredients

Toluene Diisocyanate  
Carbon Black

**MS-90 MSDS**

Commonwealth of Pennsylvania addendum to the material safety data sheet

Product name: **MS-90 Glass Primer**

Effective date: 8/1/2008

All of the materials in this product that are required by the commonwealth of Pennsylvania to be identified are listed below. In addition, some of the materials identified may have been placed by the commonwealth of Pennsylvania on their hazardous substance list.

**Ingredients**

	<b><u>CAS Number</u></b>	<b><u>Weight %</u></b>
Ethyl acetate / Acetic acid ethyl ester	141-78-6	60 - 90
Non-hazardous trade secret ingredient(s)	Proprietary	10-30
Carbon black	1333-86-4	5-10
Butyl acetate, N- / 1-Butyl acetate	123-86-4	1-5

*The specific chemical identity of any substance not identified with a chemical abstract service number is being held as a trade secret.*

End of MSDS

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